

## CLAIMS

1. A suture separation and organization device for use in a graft tensioning system during joint repair surgery, comprising:

body means for providing a structure for the suture separation and organization device;

means for removably attaching said body means to a graft tensioning device;

means for separating and organizing a plurality of suture strands extending away from a bone tunnel in a desired spaced-apart orientation when said body means is attached to a graft tensioning device during joint repair surgery; and

a passageway or recess in said body means through which an interference screw can be inserted during joint repair surgery.

2. A suture separation and organization device as defined in claim 1, said body means comprising a first elongate body comprising a gripping head at one end and a chiseled end opposite said gripping head that facilitates insertion of said first elongate body between two or more suture strands.

3. A suture separation and organization device as defined in claim 2, said means for removably attaching said body means to a graft tensioning device comprising a plurality of attachment passages or recesses in said elongate body, each being sized and positioned so as to at least partially receive therein a corresponding post of a graft tensioning device.

4. A suture separation and organization device as defined in claim 2, said means for separating and organizing a plurality of suture strands comprising first and second suture retention recesses or protrusions in said elongate body adapted to retain first and second suture strands or groups of suture strands extending away from a bone tunnel in said desired spaced-apart orientation.

5. A suture separation and organization device as defined in claim 2, said body means further comprising a second elongate body similar or identical to, but separate from, said first elongate body, said first and second elongate bodies, when used in tandem, being adapted to separate and organize four suture strands or groups of suture strands into four spaced-apart quadrants.

6. A suture separation and organization device as defined in claim 5, said first and second elongate bodies each including a recess that forms part of said passageway or recess in said body means through which an interference screw can be inserted during joint repair surgery.

7. A suture separation and organization device as defined in claim 1, said body means comprising a body having a first surface that is oriented toward a graft tensioning device when in use and a second surface that is oriented toward a bone tunnel in a patient's leg when in use.

8. A suture separation and organization device as defined in claim 7, said first surface of said body being substantially flat, said body having an elliptical or ellipsoidal cross section.

9. A suture separation and organization device as defined in claim 7, said means for removably attaching said body means to a graft tensioning device comprising a plurality of attachment passages or recesses in said body, each being sized and positioned so as to at least partially receive therein a corresponding post of a graft tensioning device.

10. A suture separation and organization device as defined in claim 9, each of said attachment passages or recesses being defined by a respective hollow post guide extending laterally from said second surface of said body so as to maintain space between a patient's leg and said second surface of said body when said suture separation and organization device is in use.

11. A suture separation and organization device as defined in claim 7, said means for separating and organizing a plurality of suture strands comprising a plurality of suture retention recesses or protrusions disposed on a perimeter of said body and adapted to retain corresponding suture strands or group of suture strands extending away from a bone tunnel in said desired spaced-apart orientation.

12. A suture separation and organization device as defined in claim 10, said means for separating and organizing a plurality of suture strands comprising four suture retention recesses or protrusions being positioned so as to separate and organize four suture strands or groups of suture strands into four spaced-apart quadrants.

13. A tensioning system for use in joint repair surgery, comprising:  
a suture separation and organization device according to claim 1; and  
a graft tensioning device configured so as to apply a desired tensile load to one or more soft tissue grafts emerging from a bone tunnel in a patient's limb and attached to a plurality of suture strands the extend away from the bone tunnel.

14. A suture separation and organization device for use in a graft tensioning system, comprising:

a body;

a plurality of attachment passages or recesses in said body, each being sized and positioned so as to at least partially receive therein a corresponding post of a graft tensioning device.

a plurality of suture retention recesses or protrusions disposed on a perimeter of said body and adapted to retain a plurality of suture strands or groups of suture strands extending away from a bone tunnel in a desired spaced-apart orientation; and

a passageway or recess in said body means through which an interference screw can be inserted during joint repair surgery.

15. A suture separation and organization device as defined in claim 14, said body comprising an elongate body having a gripping head at one end and a chiseled end opposite said gripping head that facilitates insertion of said elongate body between two or more suture strands.

16. A suture separation and organization device as defined in claim 14, said body having a first surface that is oriented toward a graft tensioning device when in use and a second surface that is oriented toward a bone tunnel in a patient's leg when in use.

17. A suture separation and organization device as defined in claim 16, each of said attachment passages or recesses being defined by a respective hollow post guide extending laterally from said second surface of said body so as to maintain space between a patient's leg and said second surface of said body when said suture separation and organization device is in use.

18. A suture separation and organization device as defined in claim 16, said suture separation and organization device comprising four suture retention recesses or protrusions positioned so as to separate and organize four suture strands or groups of suture strands into four spaced-apart quadrants around said perimeter of said body.

19. A suture separation and organization device as defined in claim 18, said perimeter of said body having a first side on which two of said suture retention recesses or protrusions are disposed and a second side on which another two of said suture retention recesses or protrusions are disposed.

20. A tensioning system for use in joint repair surgery, comprising:  
a suture separation and organization device according to claim 14; and

21. a graft tensioning device configured so as to apply a desired tensile load to one or more soft tissue grafts emerging from a bone tunnel in a patient's limb and attached to a plurality of suture strands the extend away from the bone tunnel.

22. A method for repairing a patient's joint, comprising:

providing a looped soft tissue graft having a doubled-over end and two free ends opposite said doubled over end;

attaching one or more suture strands to each free end of said soft tissue graft;

attaching said doubled-over end of said soft tissue graft to a first bone of the patient's joint while leaving said free ends of said soft tissue graft initially unaffixed to a second bone of the patient's joint,

said free ends of said soft tissue graft emerging from a bone tunnel within said second bone,

said one or more suture strands extending away from said bone tunnel;

separating and organizing said suture strands in a desired spaced-apart orientation;

applying a tensile load to said looped suture in manner so that said tensile load is equalized between said free ends of said tissue graft bundle; and

affixing said soft tissue graft within said bone tunnel in said second bone of the patient's joint.

23. A method as defined in claim 22, wherein said suture strands are separated and organized in said desired spaced-apart orientation using a suture separation and organization device according to claim 1.

24. A method as defined in claim 22, wherein said suture strands are separated and organized in said desired spaced-apart orientation using a suture separation and organization device according to claim 14.

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